# THE PREVENTION OF DENGUE FEVER

BY

E. H. ROSS, M.R.C.S.Eng., L.R.C.P.Lond.

MEDICAL OFFICER OF HEALTH, PORT SAID; PUBLIC HEALTH INSPECTOR, SUEZ CANAL; EGYPTIAN PUBLIC HEALTH DEPARTMENT

(*Received* 25 *March*, 1908)

Egypt has always been subject to periodical epidemics of dengue or dandy fever. In some of the towns the disease seems to be endemic, but sudden outbursts occur which spread all over the country. The disease presents the same characteristics as in other parts of the world and rarely gives rise to much difficulty in diagnosis. During epidemics the classical symptoms are very evident, including the pains, the apyretic period, and the rashes, which are sufficient to differentiate it from influenza. When pandemics of the disease occur in Egypt every town is invariably attacked, and few people escape. The death-rate, however, is very small as noticed elsewhere, though the debility and cardiac depression following an attack occasionally account for the sudden deaths of a few individuals who before were healthy. Since the discovery of the means of the transmission of malarial fevers it has been suggested by various writers that dengue fever is also conveyed from the sick to the healthy by the mosquito. Apparently Graham, of Beyrout, was the first to bring forward strong evidence of this,[1] and he named *Culex fatigans* Wied: as the culprit. Since that date further and conclusive evidence has been brought forward to support this statement.[2]

Dengue fever used to be very prevalent in Port Said, as in other parts of Egypt, up to the year 1905. An epidemic of the disease occurred in the town during the summer of 1904, and in the spring of 1905. This epidemic was part of an infection of all the towns of Egypt, and was most severe. The hospitals were full of cases, and patients actually contracted the disease in them. In Port Said almost everyone suffered from an attack, and the place was regarded

as fever-stricken and unhealthy. The town was full of mosquitoes, including two species of Anophelines, *Culex fatigans* and *Stegomyia* spp., in abundance. These mosquitoes were breeding in cess-pools under the houses, in basement cellars flooded with sewage, garden fountains, barrels containing water, and were a veritable pest day and night, summer and winter.

In May, 1906, a campaign against mosquitoes was instituted in the town as a general sanitary measure, with funds subscribed by the Egyptian Government and the Suez Canal Company, the support of Prince d'Arenberg, President of the Canal Company, and Sir Horace Pinching, late Director-General of the Egyptian Public Health Department, having been obtained. Two mosquito brigades were formed, one for the European and one for the native quarters of the town, and the oiling of all stagnant water practised once every week. Cess-pools were re-built and cellars filled up, with the result that within three months the mosquitoes were reduced to a negligible quantity, and mosquito nets largely dispensed with. Now, after two years, mosquitoes have become so rare in the town that they can be ignored, and malaria, though never very prevalent, has completely disappeared. But dengue fever has disappeared also, no case having been treated in Port Said since July, 1906. During the early part of that year, before the mosquito work began, dengue fever made its appearance as usual. Thirteen cases were treated in the hospital alone during April and May, and then as the mosquitoes disappeared the disease stopped and has not recurred since. In September, 1906, a severe epidemic raged throughout Egypt, beginning at Assouan and running rife in Cairo and Alexandria. It appeared in all the other towns, but Port Said and Ismailia remained free from it, no case occurring in either place. During the autumn of 1907 it again passed through Cairo and other parts of Egypt, but again Ismailia and Port Said escaped. Formerly the wards of the hospital in this town were full of cases of 'fever' during the summer months, but now the beds are used for other cases, which no longer contract fever although the mosquito nets have been removed. The extinction of the mosquito is greatly simplified in Egyptian towns owing to the dry summers, and the results can be easily watched. Port Said has a population of 56,000, and Ismailia 10,000. The cost of the mosquito work in the former is sixpence per head of population per year, while in the latter

town it is nearly eighteenpence per head, owing to the extensive irrigation works which have to be regularly dealt with.

It would seem, then, that the extermination of the domestic mosquito means the prevention of dengue fever, which, although not a very fatal disease, is one which causes endless misery in warm climates, and is as well a great hindrance to trade.

## LITERATURE

1. GRAHAM. Journal of Tropical Medicine, February 1, 1903.

2. ASHBURN AND CRAIG. Philippine Journal of Science. B. Medical Sciences, Vol. II, No. 2, May, 1907. Quoted from Journal of the Royal Army Medical Corps, September, 1907.